

## ABSTRACT

A system for generating, delivering and distributing electrical power to network elements over a data communication network infrastructure within a building, campus or enterprise. Consolidating power distribution and data communications over a single network  
5 simplifies and reduces the cost of network element installation and provides a means of supplying uninterrupted or backup power to critical network devices in the event of a power failure. The invention includes power/data combiners that combine a data communication signal with a low frequency power signal. The combined signal is transported over the LAN infrastructure where a power/data splitter extracts the data signal and the power signal and  
10 generates two separate outputs. The power over LAN system of the present invention operates with high bandwidth data communication networks, i.e., 10 Mbps, 100 Mbps, 1000 Mbps. The electrical power distributed over the LAN can be delivered as DC or low frequency AC voltages which in either case will not interfere with data communications signals. The electrical power delivered over data communications cable can be transmitted  
15 using one or more spare pairs in the cable or over the receive and transmit wires.